A. GENERAL

Each pole shaft, luminaire extension, luminaire mast arm and signal mast arm shall be formed of proper steel to a round tapered shaft as called for on the plans and shall have only one longitudinal automatic electric weld, without prior approval of the City Engineer.

Each pole shall consist of a steel shaft as required; luminaire arm, as required; wire inlets, as required; pole top cover, as required; handhole, as required; and traffic signal and/or luminaire mast arms, as required. Miscellaneous hardware shall include handhole covers, ornamental anchor bolt covers, all bolts, nuts and washers necessary.

All dimensions shown are nominal.

Scope of Design

The traffic signal mast arm structure shall be designed and fabricated to permit the interchange of traffic signal arm lengths, luminaire extension and luminaire arm lengths without changing or modifying the vertical Shaft Component, within the Case Limits specified.

The vertical Shaft, traffic signal mast arm, luminaire extension and luminaire mast arm must be tapered and shall conform to one of the following conditions:

CROSS SECTION	SHAFT FACE	ARM FACE	REMARKS
	0.14"/Ft. Desired Taper	STRAIGHT 5" Max. without Load 0" Min. with Load	State of Nebraska Standard 912
	0.14"/Ft. Desired Taper	STRAIGHT 2.5' Rise in 3/4 of length	
	0.14"/Ft. Desired Taper	CURVED 2.66 Rise (formed to the radius the entire length	

Bolt circles and anchor bolts different than those in the Case Limits, if required by the manufacturer, must be approved by the City Engineer prior to incorporation into the project.

The pole manufacturer shall furnish a notorized certificate stating that the poles and associated materials comply with the structural, wind loading and finish requirements of the plans and these Special Provisions.

1. Design Criteria

   In addition to the requirements set forth in the current edition ASSHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals". The following design criteria shall be followed in the design of steel traffic signal and street light poles:

   a. Physical Characteristics
      1) Dead Weight
      2) Projected Area
      } as shown in the table this sheet

2. Wind Loads

   80 MPH ISOTACH

B. SHAFT VERTICAL

The vertical shaft and the luminaire extension shaft of the mast arm shall be continuously tapered except when Traffic Mast Arm length exceeds 70', then multiple bends to achive roundness is acceptable. The round pole should be a diameter dimension reduction of approximately 0.14 inches per linear foot. The octagonal pole maximum dimension reduction measured across the flats is 0.24 inches per linear foot.

The vertical shaft top shall be fabricated to accept either a bolted pole top cover, or an internally bolted joint to attach the luminaire extention. Bolted joints shall have a rain flange to insure a rain tight joint, the horizontal joint of a shaft shall be immediately above the traffic signal mast arm. The shaft of any pole ordered shall be sized to accept any luminaire mounting height for the Case Limits requested.

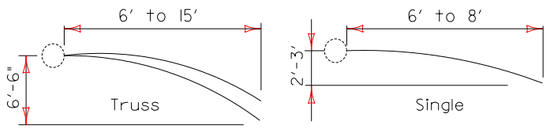
A grounding terminal shall be welded on the inside of the vertical shaft to accommodate a #4 AWG ground wire. A cable support hook shall be welded inside the top of the shaft.

C. LUMINAIRE ARMS

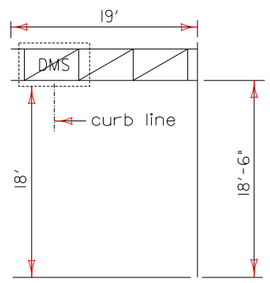
The luminaire arm shall be clamp design

D. MODIFICATIONS

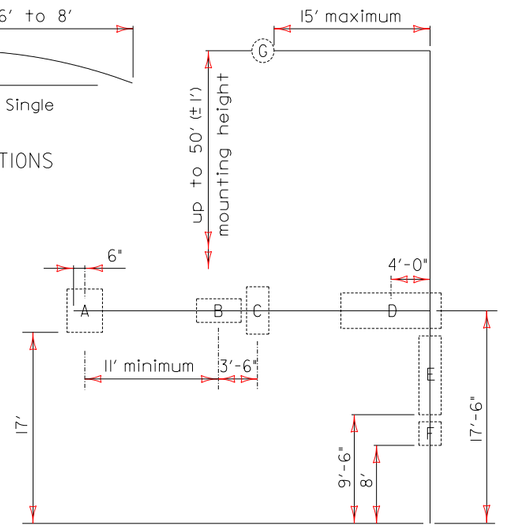
Pole modifications shall be as called for in "Modification Schedule" and may include, reinforced wire inlets, half couplings and taps for other accessories.



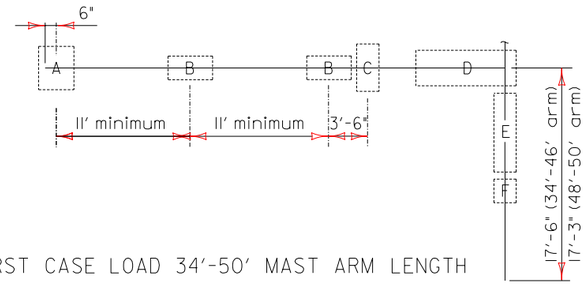
CURVED LUMINAIRE ARM OPTIONS



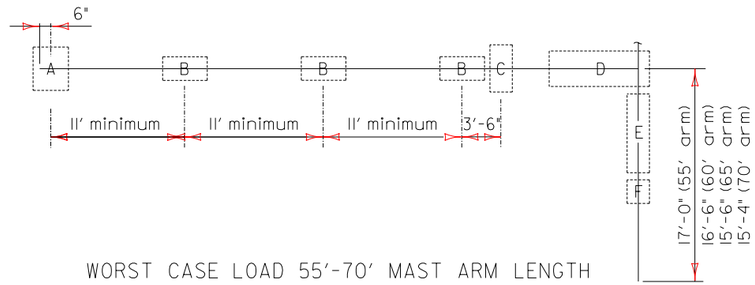
DMS SUPPORT POLE



WORST CASE LOAD 18'-32' MAST ARM LENGTH
CASE 1



WORST CASE LOAD 34'-50' MAST ARM LENGTH
CASE 2



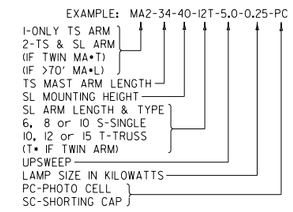
WORST CASE LOAD 55'-70' MAST ARM LENGTH
CASE 3

I. Wire Inlet

Traffic signal mast arm, luminaire mast arm, luminaire extension and pole shaft shall be supplied with rubber grommets for contractor drilled openings for cable inlets. Signal Mast Arms shall be supplied with (5 ea) 1" I.D. & (2 ea) 1 1/2" rubber grommets. All Wire Inlet Holes shall be drilled and deburred in the field by the contractor.

E. FINISH

Each pole shaft, luminaire extension, luminaire arm and signal arm as required shall be galvanized in accordance with ASTM A-123. All miscellaneous hardware shall be galvanized in accordance with ASTM A-153 ((except threaded fasteners less than three-eighths inch (3/8") diameter)).



POLE TYPE AND SIZE LEGEND

CASE LIMITS

Within a Case Limit the vertical shaft consisting of one, two or three parts (ie primary shaft, slipfit section and luminaire extention) having one shaft size, one bolt circle size and one anchor bolt size

COMPONENT	CASE 1	CASE 2	CASE 3	DMS
TRAFFIC MAST ARM LENGTHS	18' to 32' 2' increments	34' to 50' 2' increments	55' to 70' 5' increments	19'
LUMINAIRE MOUNTING HEIGHT	30' to 50' 5' increments	30' to 50' 5' increments	30' to 50' 5' increments	-
LUMINAIRE ARM LENGTH	6' to 15'	6' to 15'	6' to 15'	-
ANCHOR BOLT SIZE	1 1/2" x 54" x 6"	1 3/4" x 84" x 6"	2" x 84" x 6"	1 1/2" x 60" x 6"
BOLT CIRCLE	17"	17 1/2"	20 1/2"	16"

Attachment Nominal Size	Projected Area Ft. Sq.	Weight (No Ice Load)
A 52" x 42"	14.46	72
B 52" x 24"	8.67	50
C 42" x 24"	7.00	30
D 108" x 36"	27.00	60
E 80" x 24"	13.33	65
F 18" x 18"	2.25	25
G luminaire	2.20	50
DMS	21.25	250

NOTE: POLE MANUFACTURER TO STAMP ALL MAJOR COMPONENTS WITH POLE NUMBER

REVISIONS

NO.	BY	DATE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

MAST ARM POLES

CITY OF LINCOLN, NEBRASKA
OFFICE OF THE CITY ENGINEER

Date: 2-03 / CAW Scale: None

No. Sheets: 2 PLAN NO. L.S.P. 85 Sheet No.: 1